IN THE CLAIMS:

1. (Currently amended) A method for megasonic cleaning a substrate, comprising the steps of:

a) providing a container having side walls on all sides of said container, said container having an overflow on at least two sides, said container having an an inlet for flowing fluid into said container, said inlet located below said overflows;

b) providing at least one from the group including a first megasonic transducer with a first active surface and a first array of megasonic transducers with a first array active surface for providing vibrational energy in said container;

c) disposing a substrate in said container within said sidewalls, below said overflow, and substantially parallel to and spaced a first spacing from at least one from the group including said first active surface and said first array active surface;

d) flowing ~~a~~ said fluid through said first spacing;

e) immersing the substrate in said fluid in said container, wherein said fluid flows over said overflow; and

f) applying energy to at least one from the group including said first megasonic transducer and said first array of megasonic transducers to provide vibration in said fluid and to clean the substrate wherein substantially all vibration provided in said fluid is from at least one from the group including said first megasonic transducer, said first array of megasonic transducers, a transducer arranged parallel to said first active

surface, and a transducer arranged parallel to said first array active surface.

2. (previously presented) A method as recited in claim 1, further comprising the step of providing relative motion between said substrate and said transducer in a direction substantially parallel to the substrate, while performing said fluid-flowing and energy-applying steps (d) and (f).

3. (previously presented) A method as recited in claim 1, wherein said substrate has a substrate surface area and at least one from the group including said first active surface and said first array active surface has an area at least equal to 40% of the substrate surface area.

4. (previously presented) A method as recited in claim 1, wherein the substrate has a maximum diameter and said first spacing is in a range from 1% to 80% of said maximum diameter.

5. (previously presented) A method as recited in claim 1, wherein said first spacing is in a range from 1 micrometer to 160 millimeters.

6. (previously presented) A method as recited in claim 1, wherein said megasonic energy applied to at least one from the group including said first megasonic transducer and said first array of megasonic transducers has a frequency of at least 400 kilohertz.

7. (previously presented) A method as recited in claim 1, wherein said megasonic energy applied to at least one from the group including said first megasonic transducer and said first array of megasonic transducers has a maximum power of at least 400 watts.

8. (previously presented) A method as recited in claim 7, wherein said megasonic energy is applied to at least one from the group including said first megasonic transducer and said first array of megasonic transducers with 20% to 100% of said maximum power.

9. (previously presented) A method as recited in claim 1, wherein said first megasonic transducer has an area and a total input power and wherein said input power divided by said area is at least four watts per square centimeter.

10. (previously presented) A method as recited in claim 1, wherein said flowing a fluid step (d) comprises flowing a fluid through said first spacing at a fluid flow rate sufficient to carry particles away from the substrate before they redeposit on the substrate.

11. (previously presented) A method as recited in claim 1, wherein said container has a volume and wherein said flowing a fluid step (d) comprises flowing a fluid through said first spacing at a rate to replace the fluid in said volume in less than or equal to one minute.

12. (previously presented) A method as recited in claim 1, further comprising the step of providing at least one from the group including a second megasonic transducer with a second active surface and a second array of megasonic transducers with a second array active surface in said tank, wherein at least one from the group including said second active surface and said second array active surface faces at least one from the group including said first active surface and said first array active surface, and is substantially parallel to and spaced a second spacing from at least one from the group including said first active surface and said first array active surface.

13. (previously presented) A method as recited in claim 12, wherein in said providing step (b) at least one from the group including said first megasonic transducer and said first array of megasonic transducers and at least one from the group including said second megasonic transducer and said second array of megasonic transducers are both completely immersed in said fluid.

14. (previously presented) A method as recited in claim 12, wherein said disposing step (c) comprises disposing the substrate in the tank between at least one from the group including said first active surface and said first array active surface and at least one from the group including said second active surface and said second array active surface.

15. (previously presented) A method as recited in claim 14, wherein said flowing step (d) further comprises flowing the fluid through said second spacing.

16. (previously presented) A method as recited in claim 15, wherein said applying energy step (f) further comprises applying energy to said second megasonic transducer.

17. (previously presented) A method as recited in claim 12, wherein said transducers first megasonic transducer and said second megasonic transducer provide energy to clean both sides and edges of the substrate.

18. (previously presented) A method as recited in claim 1, wherein said fluid comprises one of deonized water, dilute RCA cleaning solution and dilute citric acid solution.

19. (Canceled)

20. (Canceled)

21. (previously presented) A method as recited in claim 1, wherein in said flowing step (d) fluid is provided in said tank at a lower level than it exits said tank

22. (previously presented) A method as recited in claim 1, wherein in said providing step (b) said first transducer is completely immersed in said fluid.

23. (currently amended) A method for megasonic cleaning a single substrate, comprising the steps of:

a) providing a container comprising at least one from the group including a first megasonic transducer with a first active surface arranged in a horizontal plane and a first array of megasonic transducers with a first array active surface arranged in a horizontal plane, wherein at least one from the group including said first magasonic transducer and said first array of megasonic transducers is held in a fixed position, and wherein said container has side walls on all sides, said container having an overflow on at least two sides, said container having an an inlet for flowing fluid into said container, said inlet located below said overflows;

b) disposing a single substrate in said container within said sidewalls, below said overflow, and substantially parallel to and spaced a spacing from said first active surface or said first array active surface;

c) immersing the single substrate in a fluid and flowing said fluid through said spacing, wherein said fluid flows over said overflow; and

d) applying energy to said first megasonic transducer wherein substantially all vibration provided in said fluid is from at least one from the group including said first megasonic transducer, said first array of megasonic transducers, a transducer arranged parallel to said first active surface and a transducer arranged parallel to said first array active surface.

24-58. (Canceled)

59. (Currently Amended) A method for megasonic cleaning a single substrate, comprising the steps of:

(a) providing a container having side walls on all sides of said container, said container having an overflow on at least two sides, said container having an an inlet for flowing fluid into said container, said inlet located below said overflows;

(b) providing a first megasonic transducer with at least one from the group including a first active surface and a first array of megasonic transducers with a first array active surface, wherein at least one from the group including said first active surface and said first array active surface is arranged in a horizontal plane to provide megasonic vibration in said container;

(c) disposing a single substrate in said container within said sidewalls, below said overflow, facing, substantially parallel to, and spaced a first spacing from at least one from the group including said first active surface and said first array active surface, wherein said single substrate is within said sidewalls and below said top edge;

(d) providing a fluid in said container, immersing said single substrate in said fluid, and flowing said fluid through said spacing, wherein said fluid flows over said overflow; and

(e) applying energy to said first megasonic transducer, wherein substantially all vibration provided in said fluid is from at least one from the group including said first megasonic transducer, said first array of megasonic transducers, a transducer arranged parallel

to said first active surface and a transducer arranged parallel to said first array active surface.

60. (previously presented) A method as recited in claim 59, wherein said single substrate has a substrate surface area and said first active surface or said first array active surface has an area at least equal to 40% of the substrate surface area.

61. (previously presented) A method as recited in claim 59, wherein said single substrate has a substrate surface and said first megasonic transducer or said first array of megasonic transducers is larger than said substrate surface.

62. (previously presented) A method as recited in claim 59, wherein the single substrate has a maximum diameter and said first spacing is in a range from 1% to 80% of said maximum diameter.

63. (previously presented) A method as recited in claim 59, wherein said first spacing is in a range from 1 micrometer to 160 millimeters.

64. (previously presented) A method as recited in claim 59, wherein said megasonic energy applied to said first megasonic transducer or said first array of megasonic transducers has a frequency of at least 400 kilohertz.

65. (previously presented) A method as recited in claim 59, wherein said megasonic energy applied to said first megasonic transducer or said first array of megasonic transducers has a maximum power of at least 400 watts.

66. (previously presented) A method as recited in claim 65, wherein said megasonic energy is applied to at least one from the group including said first megasonic transducer and said first array of megasonic transducers with 20% to 100% of said

maximum power.

67. (previously presented) A method as recited in claim 59, wherein said first megasonic transducer has an area and a total input power and wherein said input power divided by said transducer area is at least four watts per square centimeter.

68. (previously presented) A method as recited in claim 59, wherein said flowing a fluid step (d) comprises flowing a fluid through said space between the single substrate and said transducer first spacing at a fluid flow rate sufficient to carry particles away from the single substrate before they redeposit on the single substrate.

69. (previously presented) A method as recited in claim 59, wherein said container has a volume and wherein said flowing a fluid step (d) comprises flowing a fluid through said space between the single substrate and said transducer first spacing at a rate to replace the fluid in said volume in less than or equal to one minute.

70. (previously presented) A method as recited in claim 59, further comprising the step of providing at least one from the group including a second megasonic transducer with a second active surface and a second array of megasonic transducers with a second array active surface in said tank, wherein at least one from the group including said second active surface and said second array active surface faces at least one from the group including said first active surface and said first array active surface, and is substantially parallel to and spaced a second spacing from at least one from the group including said first active surface and said first array active surface.

71. (previously presented) A method as recited in claim 70, wherein in said providing step (b) at least one from the group including said first megasonic transducer and said first array of megasonic transducers and at least one from the group including said second megasonic transducer and said second array of megasonic transducers are both completely immersed in said fluid.

72. (previously presented) A method as recited in claim 70, wherein said disposing step (c) comprises disposing the single substrate in the tank between at least one from the group including said first active surface and said first array active surface and at least one from the group including said second active surface and said second array active surface.

73. (previously presented) A method as recited in claim 72, wherein said flowing step (d) further comprises flowing the fluid through said second spacing.

74. (previously presented) A method as recited in claim 73, wherein said applying energy step (f) further comprises applying energy to said second megasonic transducer.

75. (previously presented) A method as recited in claim 70, wherein said first megasonic transducer and said second megasonic transducer provide energy to clean both sides and edges of the single substrate.

76. (previously presented) A method as recited in claim 59, wherein said fluid comprises one of deonized water, dilute RCA cleaning solution and dilute citric acid solution.

77. (previously presented) A method as recited in claim 1, wherein at least one from the group including said first megasonic transducer and said first array of megasonic transducers is larger than said substrate.

78. (previously presented) A method as recited in claim 23, wherein said first megasonic transducer is larger than said single substrate.

79. Cancel

80. (previously presented) The method as recited in claim 1, wherein in said providing step (b) at least one from the group including said first active surface and said first array active surface is arranged in a horizontal plane.

81. (Withdrawn) The method as recited in claim 1, wherein in said providing step (b) at least one from the group including said first active surface and said first array active surface is arranged in a vertical plane.

82. (previously presented) A method for megasonic cleaning a substrate, comprising the steps of:

a. providing a first megasonic transducer with a first active surface;

b. providing a second megasonic transducer with a second active surface facing said first active surface and substantially parallel thereto;

c. disposing a substrate between said first active surface and said second active surface to provide a first space between the substrate and said first active surface and a second space between the substrate and said second active surface;

d. flowing a fluid through said first space and through said second space; and

e. applying energy to said first megasonic transducer and to said second megasonic transducer to provide vibration in said fluid and to clean the substrate wherein substantially all vibration provided in said fluid is from a transducer arranged parallel to said first active surface.

83. (previously presented) A method as recited in claim 82, further comprising the step of providing relative motion between said individual substrate and said transducer in a direction substantially parallel to the substrate, while performing said fluid-flowing and energy-applying steps (d) and (e).

84. (previously presented) A method as recited in claim 82, wherein the substrate has a maximum diameter and said space is in a range from 1% to 80% of said maximum diameter.

85. (previously presented) A method as recited in claim 82, wherein said space is in a range from 1 micrometer to 160 millimeters.

86. (previously presented) A method as recited in claim 82, wherein said megasonic energy applied to said megasonic transducer has a frequency of at least 400 kilohertz.

87. (previously presented) A method as recited in claim 82, wherein said megasonic energy applied to said megasonic transducer has a maximum power of at least 400 watts.

88. (previously presented) A method as recited in claim 82, wherein said megasonic energy is applied to said megasonic transducer with 20% to 100% of said maximum power.

89. (previously presented) A method as recited in claim 82, wherein said transducer has an area and a total input power and wherein said input power divided by said transducer area is at least four watts per square centimeter.

90. (previously presented) A method as recited in claim 82, wherein said flowing a fluid step (d) comprises flowing a fluid through said first space and through said second space at a fluid flow rate sufficient to carry particles away from the substrate before they redeposit on the substrate.

91. (previously presented) A method as recited in claim 82, wherein said container has a volume and wherein said flowing a fluid step (d) comprises flowing a fluid through said spaces at a rate to replace the fluid in said volume in less than or equal to one minute.

92. (previously presented) A method as recited in claim 82, wherein in said providing step (b) said first transducer and said second transducer are both completely immersed in said fluid.

93. (previously presented) A method as recited in claim 82, wherein in said disposing step (c) said substrate is completely immersed in said fluid.

94. (previously presented) A method as recited in claim 82, wherein said megasonic transducers provide energy to clean edges of the substrate.

95. (previously presented) The method as recited in claim 24, wherein said fluid comprises one of deonized water, dilute RCA cleaning solution and dilute citric acid solution.

96. (previously presented) A method as recited in claim 82, wherein in said providing step (b) said active surface is arranged in a horizontal plane.

97. (New and withdrawn) The method as recited in claim 24, wherein in said providing step (b) said active surface is arranged in a vertical plane.

98. (previously presented) A method as recited in claim 82, wherein in said flowing step (d) fluid is provided in said tank at a lower level than it exits said tank.